Adaptive Capacity and Community Participation in Makassar City in Dealing with the Impacts of Climate Change

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Abstrak. This paper aims to provide an overview of the adaptive capacity of urban communities to face climate change, the ability to adapt to the potential for bad things in urban life due to various disasters, both natural (such as floods, droughts, and fires) or caused by human activities (industrial accidents, pollution, and socio-political instability), including in this case the ability of urban communities to reduce potential damage, take advantage of opportunities, and overcome the consequences. This research was conducted in Makassar City. The research method used a qualitative approach. The technique for determining informants used in this research was determined purposively, namely informants who had a profile according to the research objectives. The data analysis technique used is descriptive analysis. Data collection techniques through observation, interviews and literature study. The research results show the perceptions and insights of Makassar City residents regarding floods, drought, and fires. First, the perception of the people of Makassar City is still at the Pre-Modernity and Industrial Society stage. In terms of disaster typology, most of our informants felt that they did not have the freedom to choose in making decisions to reduce the risk of flood and drought disasters because disaster risks can be calculated, but the one who has the full duty to do this is the government, while the government also feels that it lacks numbers and resources available that understands enough about disasters. The second problem concerns the factors inhibiting and encouraging the participation of the Makassar City community in mitigating flood and drought disasters. Second, the driving factor for community participation which is included in the internal domain is the culture of mutual cooperation which is quite high during disasters and after disasters, then the enthusiasm of residents in participating in disaster outreach carried out by the government. The factors inhibiting participation in the internal domain include a culture of disaster awareness that has not yet developed; there are still residents who only passively wait for assistance, behavior dependent on government assistance. The third problem is related to the appropriate model for increasing the participation of the Makassar City community in disaster mitigation. The model for increasing Makassar City community participation in disaster mitigation that this research tries to propose is Community-Based Makassar City Disaster Mitigation.

Keyword: Adaptive Capacity, Community Participation, Mitigation, Climate Change And Disaster.

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1 Introduction

Our social and environmental conditions are not good. Currently, social life is very dynamic and very different from social life a few decades ago. Likewise, the environmental conditions are constantly changing, unstable and experiencing many shocks. These changes do not only occur in the form of topography or landscape of the natural landscape but the earth's climate is also constantly changing and the geothermal temperature is increasing. The weather and changing seasons are no longer regular. Natural disasters are increasingly occurring in the form of floods, droughts, earthquakes, tornadoes, and so on. These natural phenomena can occur not only because of global climate change, but also due to human activities.

The impacts of climate change are global but are felt more locally. Rising global temperatures accelerate the melting of polar ice, leading to rising sea levels and impacting coastal areas around the world, as well as changing global rainfall patterns . Areas that were previously dry could become even drier, and areas with high rainfall could experience more frequent flooding. Rising sea levels also have a negative impact on Indonesia as an archipelagic country and threaten to sink several small and medium-sized islands.

The impact of global climate change is also very much felt in the densely populated city of Makassar with its complex infrastructure. Recently, flooding has become more frequent, possibly caused by a combination of factors such as extreme rainfall, suboptimal urban drainage, and rising sea levels. Therefore, Makassar as a coastal city is vulnerable to inundation due to the increasing expansion of sea water.

heat with higher air temperatures in Makassar city compared to rural areas is also triggered by the construction of concrete infrastructure, loss of green areas, and vehicle pollution. Meanwhile, changes in rainfall patterns have become more erratic. The rainy season sometimes comes later or shorter, but is accompanied by heavy rain in a short time and simultaneously causing flooding, as happened in early 2023 which almost submerged the entire city of Makassar and triggered an increase in the number of refugees by 2,929 people. At the same time, strong winds also hit the city, causing trees to fall and damaging residents' houses and office buildings.

Approaching mid-2023, Makassar City also faced a drought disaster due to prolonged dry season. Therefore, clean water became scarce and fire disasters also became a serious threat. The fire incident then became one of the top issues in Makassar City. The fire apparently not only hit residential areas or residents' homes, but also devoured public places such as shopping and recreation centers.

The losses caused by these disasters are not only physical and infrastructure, but also psychological, such as mental disorders for disaster victims that hinder routine activities and economic life and trigger other social problems such as violence, poverty, and inequality. The impact of the disaster can be even worse due to the lack of public understanding of the dangers. Especially if there is no information and early warnings obtained beforehand. Ignorance of the threat of disaster makes people less able to face it.

In such a situation, adaptive capacity becomes very important for the readiness and preparedness of the government, society, and all related parties in facing it. This disaster preparedness must be pushed even stronger and a series of efforts to reduce disaster risks must be carried out seriously and comprehensively, especially since it is

also a mandate of the Republic of Indonesia Law Number 24 of 2007 which must be implemented properly.

To be able to make Makassar a resilient city, it is not only the government's task, but it needs to be supported by all elements of community strength. The government certainly will not be able to work alone as a whole without awareness and involvement from various elements of community strength and other related parties. Resilience to the threat of disaster risk needs to be developed early on through disaster risk reduction efforts or mitigation that are encouraged from the government to the lowest levels of society.

2 Literature Review

2.1 Adaptive Capacity

Global climate change brings serious challenges to the city of Makassar. Increasing flood intensity, changes in rainfall patterns, rising temperatures that cause drought, prolonged dry season, clean water shortages, and increasing fire intensity require high adaptive capacity from all stakeholders. The community, government, and private sector must be able to work together to improve the readiness and preparedness of the city of Makassar in facing the threat of climate change by prioritizing resilient infrastructure, environmental education programs, and climate-friendly policies.

To deal with the impacts of climate change, certain capabilities are needed, which we call adaptive capacity. This adaptive capacity is important because it allows communities to survive and thrive even in dangerous situations. This adaptive capacity is the ability of a community, region, and system to adjust to climate or environmental changes, reduce potential damage, and take advantage of opportunities (Smit & Wandel, 2006). In the context of the Makassar community and city, it is crucial to prepare several aspects of developing adaptive capacity, such as:

First , mitigating the impact of disasters considering the dense population of Makassar city which makes it very vulnerable to disasters such as floods, droughts, fires, tornadoes, heat waves, and rising sea levels through the development of resilient and environmentally friendly infrastructure, such as better drainage systems, development of green open spaces, and the existence of an early warning system for floods or other disasters that enable the community to be better prepared for sudden weather changes.

Second, Increasing community welfare and social resilience in the form of community ability to survive the impacts of climate change which is greatly influenced by access to information, resources, and supportive public policies. Therefore, the community needs to be given understanding and awareness through education about the impacts of climate change and the mitigation methods they can do. In addition, synergy and collaboration are needed between various parties, especially from the pentahelix elements (government , private sector, academics, media and society) in formulating sustainable adaptation policies.

Third , increasing economic resilience and economic stability of the community considering that climate change can affect the economic productivity of urban

communities, especially the tourism, fisheries and infrastructure sectors because they are related to the sea which is vulnerable to climate change.

Fourth , environmental sustainability requires efforts to preserve and restore ecosystems, such as planting or developing mangrove forests which function as natural barriers to the threat of erosion and rising sea levels, as well as the need for efforts to reduce emissions that exacerbate climate change.

2.2 Community Participation

Community participation is an important part of national development. Community participation can be interpreted as the involvement or participation of the community in a program plan, action, policy, monitoring and evaluation of common problems. Formally, participation is "the participation of a person both mentally and emotionally to provide functions in the decision-making process, especially regarding issues where the personal involvement of the person concerned carries out his responsibilities and does so" (Winardi, 2005: 79). By giving someone the opportunity to convey something, he will feel appreciated and needed, especially in the decision-making process, determining and making a development plan, so that it will be a motivation for him to involve himself and take part in development activities.

One of the concepts that is widely used to determine the level of community participation was put forward by Arnstein (1969) which is known as the theory of the ladder of participation (Ladder of Participation), categorizing participation into certain levels which are divided into three degrees of participation as follows:

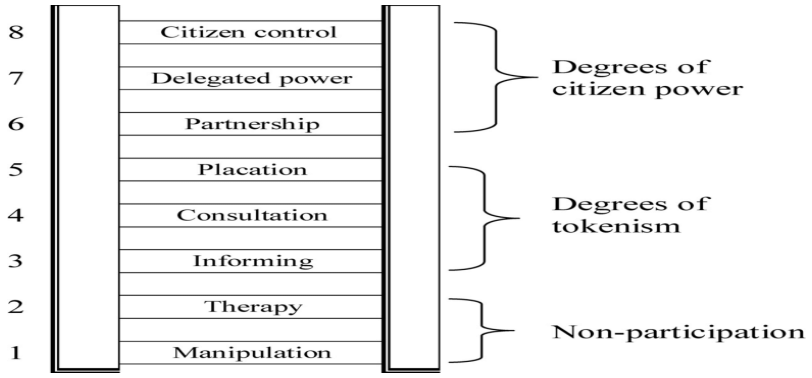

Figure 1. Visualization of the Theory of the Ladder of Participation
Source: Arnstein (1969)

The first degree as the lowest degree shows no participation (Non-participation). Participatory activities that occur in this category are basically the same as distortion of participation because they do not really provide opportunities for the community to participate and are done simply to please the public as if there was participation. This category has two steps, namely therapy and manipulation.

The second degree has indicated participation (Degrees of tokenism). At this stage, community involvement is higher compared to the previous degree where there has

been dialogue activity with the community, although it does not directly involve them in decision making. At this level there are three steps, namely providing information, consultation, and reassurance. Providing information shows one-way communication from the authorities to the community. Consultation shows two-way communication, and reassurance involves the community further in the policy-making committee. While at the third level, the community has power. This third level is the highest degree, where the community can be directly involved in decision making and public services. At this third level there are three steps, namely partnership with the community, delegation of power, and citizen control.

Meanwhile, Cohen and Uphoff in Soetomo (2012) divide community participation in development into 4 stages, namely: First , the planning stage where community participation can be known through their activeness in attending socialization, deliberations, counseling, training related to what programs will be implemented, the community is asked to convey their opinions, thoughts and suggestions. Second , the implementation stage where community participation in providing contributions in the form of: participation in the form of labor, participation in the form of money, participation in the form of property to support the implementation of the development program. Third , the stage of utilization of results where community involvement in assessing the extent to which the implementation of the program is in accordance with the plan and the extent to which the results in meeting the needs of the community and community members have the right to participate in enjoying every joint effort that exists. Fourth , the evaluation stage where the community assesses and monitors development activities and their results.

There are three main reasons why participation is important, namely: First , community participation is a tool to obtain information about the location, needs and attitudes of the local community, without whose presence development programs and projects will fail. Second , that the community will trust the project or development program more if they feel involved in the preparation and planning process, because they will know the ins and outs of the project and will have a sense of ownership of the project. Third , the assumption arises that it is a democratic right for the community to be involved in the development of their own community (Conyers, 1994) .

Factors that can influence participation are: (a) Knowledge/cognitive, in the form of knowledge about themes, facts and rules. (b) Situational conditions, such as physical environment, social environment, psychosocial and social factors. (c) Social habits, such as sedentary habits and environment. (d) Needs, including the need for self-approach, avoidance, individual needs. (e) Attitudes, including views/feelings, willingness to react, social interaction, interests and attention (Sudjana, 2010).

In the implementation of the community participation process, sometimes there are certain obstacles that must be resolved immediately. These obstacles can be structural obstacles (an environment that is not conducive and does not support community participation such as weak government commitment and lack of legislative capacity and lack of budget), internal obstacles of the community itself (such as lack of initiative and lack of capacity), and obstacles due to lack of skills in participation techniques (Sumarto, 2000).

2.3 Disaster Mitigation

Law Number 24 of 2007 gives us an understanding of disaster as an event or series of events that threaten and disrupt the lives and livelihoods of the community caused by both natural and/or non-natural factors and human factors resulting in human casualties, environmental damage, property losses, and psychological impacts. These natural disasters can be in the form of earthquakes, tsunamis, volcanic eruptions, floods, droughts, hurricanes, and landslides.

Since the issuance of Law Number 24 of 2007, the paradigm of disaster management has not only focused on when and after a disaster occurs, but also its handling includes before a disaster occurs or has the potential to occur, which we know as disaster mitigation. Mitigation is understood as a series of efforts to reduce disaster risks, both through physical development and awareness and increased ability to face disaster threats as stated in Article 47 paragraph 1 which reads "Mitigation is carried out to reduce disaster risks for communities in disaster-prone areas" . While paragraph 2 reads "Mitigation as referred to in paragraph (1) is carried out through: a. implementation of spatial planning; b. regulation of development, infrastructure development, building layout; and c. provision of education, counseling, and training both conventionally and modernly" .

The mitigation paradigm in disaster management is more directed at identifying disaster-prone areas, recognizing patterns that can cause vulnerability, and carrying out mitigation activities, both structural and non-structural (Bakornas PB, 2007). As Suwaryo and Yuwono (2017) explain, structural mitigation can be carried out by strengthening infrastructure and buildings that are potentially affected by disasters, such as engineering designs for landslide-retaining buildings and coastal walls. While non-structural mitigation can be carried out by avoiding building in disaster areas through spatial planning, as well as empowering local governments and communities.

There are two stages of disaster mitigation planning according to Inoguchi, et al. (2003), namely: First, the pre-event planning stage for disaster management, which includes mitigation activities and disaster planning. Second, the post-event planning stage which includes improving technical standards as well as medical and financial assistance for victims.

Bakornas PB (2007) also explains the relationship between hazard , vulnerability , and capacity with disaster risk . Therefore, efforts that can be made in relation to disaster risk reduction are reducing the level of vulnerability because it is easier to do compared to reducing or minimizing the danger.

$$Risiko\ Bencana = \frac{Bahaya\ x\ Kerentanan}{\text{Kemampuan}}$$

Or

Risiko = Bahaya x kerentanan x ketidakmampuan

3 Methodology

Study This uses a qualitative method that is natural and dynamic and evolving. Field conditions continue to develop so that researchers increasingly conduct observation activities or interviews with research subjects. Assumptions can also run dynamically. The data that has been collected will be presented in the form of an inductive narrative and the results of the study emphasize meaning rather than generalization.

Qualitative methods capture situations and aim to understand the phenomena experienced by research subjects. For example, behavior, perception, motivation, action, and so on, holistically in a descriptive manner in a certain context without human intervention.

Qualitative research uses the term social situation (Spradley) which consists of three elements, namely place, actors, and activities that interact synergistically. The social situation in this study is the Makassar City community . This research was conducted for 3 months, namely in July, August, and September 2023. Data collection techniques were through observation, interviews, FGDs, documents, and triangulation.

The purpose of using observation is to determine the form of participation given by the community as a form of disaster mitigation to reduce the risk of floods, fires, and droughts in Makassar City . Semi-structured interviews are intended to determine problems more openly where the interviewees are asked for their opinions and ideas so that researchers will obtain more in-depth information related to the problems being studied. The form of questions asked is open, namely by asking questions that are not limited and inviting open answers.

Data sources in the form of documents such as writings, images, or monumental works, both sourced from personal documents and official documents. The documentation process is carried out by collecting several writings and images in the form of notes during the research, and all documents related to the research discussion are considered as sources of information. Documents or archives obtained by researchers in the form of files of flood, fire, and drought disasters that have occurred occurred in Makassar City.

After the data is collected, a triangulation process will be carried out to obtain validity and a convincing level of trust. There are three types of triangulation used to test the credibility of this research, namely: source triangulation, technique triangulation, and time triangulation.

3.1 Data source

Primary data sources were obtained from key informants through interviews with bureaucrats, sub-district heads, village heads, community leaders and communities who were considered to have a direct connection to the problems studied and community participation in natural disaster mitigation to reduce the risk of natural disasters in Makassar City .

Determination informant done with map the sub-district area or the most vulnerable sub-district affected disasters of floods, fires and droughts that have

occurred occurred in Makassar City. The list of informants who were interviewed in depth or through FGD are :

Table 1. The List of Informants for In Depth Interview and/or FGD

No	Category Informant
1.	Disaster Management Agency Makassar City Regional Disaster (BPBD)
2.	Makassar City Social Services
3.	SAR Agency
4.	Sub-district heads from vulnerable sub- districts disaster floods, fires and droughts
5.	The village head of the disaster-affected village floods, fires and droughts
6.	Community organizations or NGOs that are concerned with mitigation disaster nature , especially floods, fires and droughts
7.	Academics who are concerned about mitigation flood, fire and drought disasters
8.	Community Figures from area vulnerable flood, fire and drought disasters
9.	Communities in vulnerable areas flood, fire and drought disasters
10.	Other key informants as determined later

Data is an indirect source obtained by data collectors, either through other people or through documents. Secondary data sources are used to support primary data collected through literature studies, documentation, books, magazines, newspapers, written archives related to the objects studied in this study, including disaster incident data. nature or policy documents issued by the Makassar city government , especially those related to with countermeasures flood, fire and drought disasters in Makassar City .

4 Results and Discussion

4.1 Disaster Management

Floods , fires, droughts, and tornadoes often occur in several areas of Makassar city. Floods routinely occur in Biringkanaya District, Manggala District, and parts of Panakukang District which usually occur in January, February and March every year. Fire disasters most often occur in Tallo District because it is a densely populated residential area where the houses are close together, use flammable building materials, and have irregular cable installations. Tornadoes also often hit Tallo District which usually occur in December and January.

When a disaster occurs, the Makassar City Social Service focuses on providing logistical assistance. If the disaster affects approximately 100 people, the Makassar City Social Service will open a public kitchen. However, if the disaster victims are less than 100 people, the assistance provided is in the form of ready-to-eat food, clothing, and assistance for vulnerable groups (children aged 0-15 years, pregnant women, breastfeeding mothers, the elderly, and the disabled), as well as post-disaster Trauma Healing assistance . The Social Service coordinates with the BPBD and the Makassar City Fire Department when a disaster occurs and plays a role during the

cooling-down phase . One of the obstacles they usually face in distributing assistance is the lack of accurate data and information from the local sub-district government.

There are differences in characteristics seen in fire and tornado disasters that occur in certain locations with floods and droughts that have a wider impact. Therefore, the model of assistance provided is also different. Usually, assistance for fire victims is more often sourced from CSR programs of companies, while assistance for flood victims comes from individuals. The Social Service also formed the TAGANA (Disaster Preparedness Cadets) group in order to accelerate the distribution of assistance to victims.

Floods and fires often occur in Tamalanrea District, Biringkanaya District, and Manggala District. However, in early 2023, the flood disaster was more widespread and even reached the Makassar District area. Floods generally occur from November to February, while fires usually occur from May to September each year.

In addition, abrasion disasters often occur on islands so that the BPBD tries to create breakwaters that also function to minimize the risk of tsunamis that have the potential to hit the city of Makassar because of its position between two active faults. In disaster management, BPBD coordinates with SAR, TNI, Social Service, Fire Department, and PU Department of Makassar City. However, some obstacles faced by BPBD in carrying out its duties are due to the lack of equipment and transportation fleets it has. Thus, in disaster mitigation efforts, it is very important to identify the causes of disasters such as high rainfall, shallowing of rivers and drainage, and accumulation of garbage which also causes flooding.

Fire disasters are caused by the lack of awareness of residents to check and repair the condition of their home electrical installations. The main factor causing fires is human error such as negligence when cooking or turning on the stove, electrical short circuits due to poorly maintained home and building electrical installations, or due to sabotage and riots. Meanwhile, the Fire Department has the main task (Pancha Dharma) of preventing and controlling fires, extinguishing fires, rescue, community empowerment, and handling hazardous and toxic material fires.

Obstacles often faced by the Makassar City Fire Department when carrying out its duties are: First, the existing equipment does not meet the minimum standards, and the number of fire engines is still lacking even though every 1000 residents should be backed up by one fire engine. Second, the lack of public understanding regarding the duties of firefighters at the fire location so that access and routes for fire engines are often blocked by crowds or many vehicles parked on the shoulders of the road. There is unclear coordination between the Police, Transportation Agency and Satpol PP in dispersing the crowd at the fire location as well as coordination with the health department which prepares ambulances for fire victims.

In reducing the risk of fire, the Makassar City Fire Department conducts socialization to the community, business actors and companies every six months. They have also initiated the existence of the REDKAR Volunteer Community (Firefighter Volunteers) and are currently drafting an MOU, joint training and procurement of Motorized Firefighters (DamTor) placed in sub-district offices.

The data on the causes of fires from 2021 to 2022 were dominated by electrical short circuits, then stoves, leaking gas cylinders, burning garbage, and candles. The objects that burned the most were houses. The number of fire victims in 2022 was 637 people and the number of fire victims in 2021 was 937 people. Meanwhile, the

amount of losses decreased from the 2021 to 2022 data, which was IDR 389,000,000. In fact, the losses in February 2021 reached IDR 5,400,000,000 and the losses in 2022 occurred in December which reached IDR 3,585,000,000. The locations where fires occur most often are in Manggala District, followed by Tamalate, Panakukang, Biringkanaya, and Tamalanrea Districts.

In the dry season, the water discharge of the dam which is the source of water decreased in June 2023 which was triggered by low rainfall and the El-Nina heat wave. Even though it rains in Makassar City, the water flows directly into the sea so that none of it can be processed into clean water. If it does not rain in Maros and Gowa, it will have an impact on reducing clean water in Makassar because the source of clean water for Makassar City residents comes from Maros and Gowa Regencies.

PDAM Makassar City tends to do less socialization regarding the potential for drought because they assume that the community is used to experiencing drought conditions. Usually during the dry season, tanker trucks are provided to distribute clean water for free to several locations in the northern part of Makassar City. However, several parties who did not receive clean water distribution during the dry season were due to the unclear location points that wanted to be assisted with clean water.

Currently, PDAM is improving and evaluating clean water services to the community by checking pipes, completing pipe connections to distribute water to the northern area of Makassar City and carrying out a clean water treatment installation construction project located in Tamalanrea District.

Rainfall forecast information is obtained from the BMKG Office of Region IV Makassar which is also the basis for warnings for the community. Forecasts of rainfall and characteristics of rainfall in the Makassar City Area from May to September 2023. The dry season in most areas of Makassar City will occur in May 2023 and peak in August 2023. Rainfall in 2023 is less than average due to El Nino. In addition to rainfall, floods and droughts are also influenced by many other factors such as topography, soil properties and so on. Currently, the BMKG Office of Region IV Makassar City coordinates three stations, namely the Paotere Makassar Maritime Meteorology Station, the Climatology Station in Maros Regency, and the Geophysical Station in Gowa Regency.

Health issues are also an important concern, especially for disaster victims. The Makassar City Health Office plays a role in the pre-disaster, disaster, and post-disaster stages. In the pre-disaster stage, they conduct socialization and prepare stocks of medicines needed during a disaster. The Makassar City Health Office also collaborates with BPBD and other agencies in terms of disaster management and receives training related to disaster data and knowledge related to locations and areas that are prone to flooding or other disasters.

Each type of disaster requires a different response. For fires, potential victims come from residents or firefighters, so health workers must be ready to provide assistance. For droughts, the Health Department urges the public to drink plenty of water, wear masks and sunscreen due to poor air quality and high UV radiation. For floods, the Health Department continues to strive to prevent the emergence of diseases such as diarrhea, itchy skin, dengue fever, and diseases caused by rat bites.

One of the important issues in the disaster risk reduction paradigm is the greater attention given to vulnerable groups. Vulnerable groups are those who cannot help

themselves when a disaster occurs. The vulnerable groups in question are young children, pregnant women, the elderly, the disabled, and the seriously ill. The Makassar City DPPPA also focuses on protecting these vulnerable groups, especially post-disaster trauma rehabilitation. Women and children are the ones who are most vulnerable to violence and injustice. Children are the biggest victims of disasters because of their inability to protect themselves, their physical and emotional abilities are different from adults. Children's health is also very vulnerable to disruption due to lack of resilience and nutritional intake during a disaster, coupled with the loss of social support, trauma and fear, and the risk of being separated from their parents.

Women are vulnerable, such as pregnant and/or breastfeeding mothers. Women need a longer recovery period after a disaster than men. The stress they experience can cause physical disorders that also have long-term impacts on pregnancy, childbirth, and the growth of the fetus and baby. During a disaster, women tend to experience marginalization and discrimination in various aspects. Meanwhile, people with disabilities such as the visually impaired (blind), hearing impaired (deaf), speech impaired (mute), limb disabilities, paralysis, and mental disabilities have physical and/or mental limitations or abnormalities that prevent them from being active like other people in general.

Likewise, the elderly have experienced a decline in body systems that include physical, psychosocial, and mental changes. Most of the elderly cannot live independently so they need special services and protection. When a disaster occurs , many elderly live alone and receive less help from their families, thus increasing the impact of the disaster they experience.

DPPPA Makassar City encourages the fulfillment of the rights of vulnerable groups, such as comfortable and decent refugee camps for women and children and the fulfillment of special needs for women and children (such as milk, baby diapers, and baby blankets). DPPPA also carries out other supporting activities such as disaster mitigation socialization by inviting the Alley Council, RT/RW, Resident Shelters, and other communities and presenting expert speakers such as BPBD, psychologists, doctors, and observers of women and children who aim to educate the community regarding the handling and special treatment of vulnerable groups during a disaster. DPPPA also carries out Trauma Healing in the form of entertainment for refugees such as singing and reading fairy tales to children or distributing basic necessities at refugee camps.

The Makassar City DPPPA also often appeals to stakeholders and Resident Shelters in each sub-district to pay attention to acts of violence in the form of psychological, physical, or sexual violence. The reporting mechanism for these acts of violence is aimed at the closest stakeholders so that they are easy to reach.

4.2 Perception of Sub-district and Urban Village Governments Regarding Disaster Mitigation.

The effectiveness of disaster mitigation policy implementation is largely determined by the perception of the policy implementers and policy targets. The mapping of policy implementers' perceptions is classified based on the type of disaster; flood, fire and drought.

Flood Disaster. Flood disaster mitigation data collection was carried out in Manggala District and Ujung Pandang District. Manggala District is one of the suburban areas located in the eastern part of Makassar City which directly borders Maros Regency and Gowa Regency. Manggala District also borders Tamalanrea District and Panakkukang District. Manggala District is divided into 8 sub-districts and in 2021 it was recorded that it had a population of 154,239 people (76,789 male people and 77,450 female people) with a population density of 6,389 people per square kilometer.

There are three locations that are often hit by quite severe flooding in Manggala District, namely Manggala Village, Batua Village, and Antang Village. The risk of flooding increases if preceded by high rainfall. If heavy rain continues, the RT / RW will monitor the water level every two hours. The village government and RT / RW apparatus have knowledge of the causal chain that increases the risk of flooding in Manggala Village, as well as the locations that are considered most vulnerable. The topography of several areas has a low elevation so that all surface water during high rainfall flows to low areas so that it becomes a puddle.

The losses caused by the disaster are enormous, ranging from building damage, cut off road access, the emergence of diseases, to the disruption of government activities, including social unrest, implications of increased crime, and riots that have the potential to claim victims. Efforts to reduce the risk include conducting informal socialization and establishing posts to monitor the potential for flooding. The monitoring post also involves the RT, RW, community leaders, Binmas, and Babinsa. The sub-district government records flood victims during the disaster and distributes aid to disaster victims.

Generally, residents already know that their area is prone to flooding, but some of those who live in flood-prone areas are migrants who rent houses. The sub-district government has coordinated with related agencies for long-term anticipation and has issued appeals and put up warning signs for residents to secure their belongings in the event of a flood, and often students also help in determining evacuation points. If rainfall starts to be high, water level measurements will be taken and residents will be immediately prepared to evacuate. PLN and PDAM also take anticipatory measures during the rainy season. The Manggala Sub-district Government also cleans up scattered garbage, including residents' belongings that are scattered.

The disaster management approach taken by the Sub-district and Village Governments still tends to focus on during and after a disaster. Meanwhile, disaster risk reduction efforts are still very minimal. Even floods are often considered routine events according to the weather cycle, even though disasters are not entirely natural events that also have social dimensions. Engineering the use of space is very possible for the government and can determine areas that are considered prone to flooding to limit newcomers who will rent houses in the flood area. This kind of action is also a way to reduce the risk of flooding, reduce social vulnerability, reduce physical vulnerability, and reduce the potential for losses due to disasters.

Although the early warning system application does not yet exist, information on the potential for flooding is disseminated by the Makassar City BPBD to the community through the RT/RW and the use of social media such as Whatsapp groups. However, there is still a need for standardization of early warnings so that they are easily utilized and understood by the community.

There are several obstacles faced by the sub-district and village governments in handling floods, such as the lack of human resources who understand disaster problems so that disaster management is not yet systematic with the support of very limited resources. Moreover, evacuation routes and refugee point locations are not yet fixed where rescue facilities such as rubber boats and life jackets are also still very minimal. Some residents also sometimes refuse to be evacuated, making it difficult for officers to provide assistance. Likewise, handling vulnerable groups during floods is also not optimal. In fact, vulnerable groups should be prioritized because they have difficulty and are unable to save themselves when a disaster occurs, so mapping the position and number of vulnerable groups in Manggala District is needed.

Ujung Pandang District is also one of the areas that is vulnerable to flooding, especially tidal flooding (coastal flooding or tidal flooding). Ujung Pandang District is divided into 10 sub-districts with an area of 2.63 km2 and has a population in 2022 of 24,911 people (12,107 male people and 12,804 female people) with a population density of 9,471 people per square kilometer.

In early 2023, there was a tidal flood that caused several areas in Ujung Pandang District to be submerged, including Jalan Penghibur, Jalan Somba Opu, Jalan Datu Museng, Jalan Haji Bau, and several islands. The sub-districts that are often affected by tidal floods are Lae-lae Sub-district, Lajangiru Sub-district, Pisang Selatan Sub-district, Pisang Utara Sub-district and sometimes also extends to Baru Sub-district. The impact of the flood is greater if the rainfall is high, especially if it coincides with high sea levels.

The tidal flood has routinely hit Lae-Lae Island, which is also exacerbated by the failure of drainage to function properly and the presence of land subsidence factors. Mitigation efforts to break the cycle chain, both structural and non-structural mitigation efforts are aimed at overcoming land subsidence and sedimentation or piles of garbage. Moreover, the elevation of Lae-Lae Island is quite low and does not have a wave retaining wall so it is easily hit by waves.

The losses caused by tidal flooding include damage to homes, property and also impacts economic activities and public health. One effort to reduce the risk of flooding is to evacuate or evacuate residents if their environment is considered no longer healthy and safe during tidal flooding. After the flood recedes, the community together with the government will help repair severely damaged houses.

Efforts made before a disaster occurs such as socialization of potential disasters gradually from the sub-district government to the village government, then from the village government then distributed to community leaders. If the rainy season, the cleaning task force cleans up garbage and removes sediment from the drainage. The community also works together to make temporary wave breaker embankments made of sacks filled with sand. There should be structural mitigation efforts for Lae-Lae Island in the form of permanent wave breaker embankments so that they can break the routine impact of tidal flooding.

The Ujung Pandang District Government refers to BMKG information in determining the time to provide warnings to the public about the coming disaster. The information is then disseminated through the WA group so that residents can quickly prepare boats and life jackets to evacuate residents. It's just that the existing evacuation routes are still situational so that the Makassar City government needs to pay attention to being able to determine permanent evacuation routes and points.

The obstacles faced by the Ujung Pandang District Government and the Lae-Lae Village Government in handling the disaster are that the assistance provided has not been maximized and is sometimes not distributed evenly to affected residents. If so, residents will take care of and process their food at their respective homes or at the homes of other residents who are considered safe. This situation also shows that the government is still focused on handling the disaster during and after it occurs. The priority of evacuating or rescuing vulnerable groups has also not been properly scheduled because there is no standard SOP. Therefore, residents rely on spontaneity and still depend on assistance from the Social Service and BPBD in helping vulnerable groups.

Fire Disaster. Fire disasters often occur in Tamalate District compared to other districts. Tamalate District is divided into eleven sub-districts with an area of 20.21 square kilometers and has a population of 186,849 people (93,248 male and 93,601 female) with a population density of 9,245 people per square kilometer.

Areas that are vulnerable to fire are slums and densely populated areas, such as in Parang Tambung, Maccini Sombala, Pa'baeng-baeng, Bonto Duri, Manuruki, Jongayya and Mangasa Sub-districts. Specifically, slum areas are located on Jalan Andi Tonro, Jalan Alauddin II, Jalan Deppasawasi, Jalan Manunggal, Jalan Leppi and Jalan Kumala II.

One of the causes of frequent fires is the large number of newcomers who rent houses. The rented houses are relatively neglected so that the electrical system is prone to short circuits which can cause fires. Fire disasters occur more often in low-income areas than in high-income areas.

Land fires also often trigger fires in residential areas, especially during the long dry season with high air temperatures. The meeting of heat factors and the presence of fuel can easily trigger fires. Burning garbage and discarded cigarette butts often also trigger land fires. This situation also shows that mitigation efforts are not yet optimal and ineffective because disasters still often recur and the potential for the scope of the impact of fires to expand, causing material losses such as the destruction of property.

Currently, there are efforts to create disaster posts at the sub-district and village levels to monitor conditions in disaster-prone areas. Intense communication is built through social media to inform developments in potential disasters at points considered vulnerable. The existence of shelters for residents under the auspices of the Makassar City DPPPA to facilitate disaster victims.

To prevent loss of life, the government always provides direction to local residents and coordinates with the Fire Department and PLN for power outages during emergencies. Socialization with residents is also often carried out so that the community is always aware of the potential for fires during the dry season, such as being careful about lighting fires, using stoves and the condition of house wiring installations. And when a disaster occurs, residents will be evacuated to mosques or houses of residents in the surrounding area that are not affected. After a disaster, the Village will coordinate assistance for building materials in the form of zinc roofs and wooden beams. Victims are also given temporary housing, and if there are victims who are unwilling to be evacuated, tents and blankets will be provided.

The efforts made by the local government to reduce the risk of disasters include the provision of posts, socialization of potential disasters to the community, and intensive

coordination through social media. However, there are no permanent evacuation routes and points, considering the absence of state-owned land that can be used as a gathering point. In addition, 1 Damtor (Motor Fire Extinguisher) unit has been provided in each sub-district which is used to extinguish fires before the fire engine fleet arrives at the fire location as well as hydrants with a network of up to 100 meters.

Mitigation efforts are still in the form of socialization whose implementation is highly dependent on the community. For that, there needs to be a legal umbrella that can force the community to live with a safe culture , starting from standardization of electrical installations, to the provision of portable fire extinguishers in houses in fire-prone areas. For fire-prone areas, the government should already have data on building density, dominant building types, road width as access for fire fleets, hydrant positions, and the existence of water sources.

One of the obstacles faced in reducing the risk of fire disasters is the lack of accurate data. The lack of disaster risk data is certainly an obstacle to reducing assistance from the Social Service and BPBD as well as the complicated administrative process during an emergency situation. The District Government also does not have a special budget allocation for disaster emergency response so it is rather difficult to cover the urgent needs of the victims. In addition, there is no access route for fire engines and relatively narrow victim evacuation routes, making it difficult to evacuate and access fire engines to the location of the fire.

Drought Disaster. The location of drought disaster mitigation data collection was carried out in Biringkanaya District and Tamalanrea District. Biringkanaya District has an area of 48.22 which is divided into eleven sub-districts. The population of Biringkanaya District in 2022 was recorded at 213,234 people (106,287 male people and 106,947 female people) with a population density of 4,422 people per square kilometer. In 2022, the highest rainfall occurred in January, namely 765.00 mm3 with 30 rainy days.

Residents of Biringkanaya District often complain about drought because PDAM water often does not flow. Areas that often experience drought are Untia, Salodong and Villa Mutiara sub-districts. Drought in Untia Sub-district began to be felt since the operation of PT. Makassar Te'ne in 2006. PT. Makassar Te'ne was considered to disrupt the allocation of clean water for the Untia community, but then the Untia community became relatively accustomed to this situation and considered it a "social destiny" that was difficult to change. Drought was considered relatively unlikely to spread like flooding as long as PDAM was willing to repair and increase the capacity of its pipe installations.

The losses due to drought are considered not as big as the losses due to flooding. Residents are only hampered in their activities, or a lot of time is wasted because they have to wait for clean water supplies. There are several fleets of clean water transport vehicles provided, to supply clean water to drought locations. However, residents consider that there must be water storage facilities and clean water transport vehicles in every sub-district that is prone to drought so that they can be used when there is a shortage of clean water. In addition, it is necessary to consider the existence of a fairly deep drilled well with a large capacity that can be used if the PDAM clean water

source discharge is reduced or the creation of a special pipeline for the Untia community.

Coordination between the sub-district and district level is intensively carried out with the PDAM regarding the drought problem so that there is a clean water supply that is rationed for each block. The community also receives assistance from CSR programs from companies for the provision of clean water. It's just that there is no special community for drought disaster mitigation. There is also no SOP for residents to deal with drought and community participation in drought mitigation efforts is still low. This illustrates that drought is not yet considered a serious disaster event. The solutions that are carried out tend to be individual and there is no coordination or effort to organize oneself to prevent the possibility of a drought disaster that may be worse in the future.

The area of Tamalanrea District is recorded as 31.84 square kilometers divided into eight sub-districts with a population of 104,587 people in 2022 (52,097 male and 52,490 female) with a population density of 3,284 people per square kilometer. In 2022, January was the month with the highest rainfall, namely 765.00 mm3 with 30 rainy days.

Tamalanrea residents also often complain about the lack of clean water during the dry season. There are several locations in Tamalanrea District that often experience drought, namely Parangloe, Lantebung, Lecturer Housing, and Bung Complex. There are two factors that are considered to be the cause of drought. First, the dry season is quite long, and second, the PDAM installation is not very adequate.

The losses caused by the drought have not been considered significant, except for the difficulties due to the disruption of daily activities. So far, the impact of the drought has also been fully handed over to the PDAM, especially since there is a hotline where residents can directly complain to the PDAM.

The data shows that drought is not yet considered a serious threat compared to floods and fires, if we look at the nominal losses and the number of victims which are considered small, so there have been no efforts to direct social capital to overcome the possibility of drought in the future.

4.3 Community Leaders' Perceptions of Disasters.

Most people view floods, fires, and droughts as something that is natural, routine, and its destructive impacts cannot be calculated or predicted so that it is difficult to avoid. Disasters are considered routine events because they are something that is seasonal in nature where their arrival and departure are something that can no longer be separated from their routine life in a year. While the destructive impact of disasters is something that cannot be predicted in advance so that the losses and victims caused by disasters are something that must be accepted with an open heart.

Those who are often flooded such as in Manggala Village and Laelae Village assume that flooding is a natural seasonal event due to high rainfall. Some of them already have knowledge related to flood times and have known the causes of flooding such as the low topography of their settlements, clogged and sedimented drainage, and the growth and expansion of housing complexes for residential areas. However, most of them do not have adequate knowledge about natural disaster mitigation. Disaster management is only related to disaster relief and post-disaster rehabilitation

efforts. However, the people of Laelae Island already have adequate knowledge about disaster mitigation such as structural mitigation in the form of the need for a breakwater embankment to avoid the island abrasion process.

In relation to fire disaster mitigation, most residents assume that fire disasters are also natural, something that routinely occurs in certain areas, especially those in densely populated and slum areas. For residents, fires are difficult to avoid, especially during the dry season, especially in May and peaking in August-September. Their understanding of the risks is still relatively low and there is a lack of motivation to independently provide fire extinguishers in their homes. In fact, quite a few hydrants that have been provided by the government have been damaged by certain irresponsible individuals. They assume that reducing the risk of fire is entirely the government's responsibility without realizing the limitations of the government's budget and human resources. In fact, residents also already have knowledge of the dominant causes of fires, such as electrical short circuits, burning garbage carelessly, or because the stove exploded. However, this is entirely considered the responsibility of negligent individuals. There is no shared awareness that disaster risk reduction can be done collectively. Most residents do not yet have adequate knowledge about fire disaster mitigation. Handling fire disasters is identified entirely with efforts to extinguish fires, evacuate victims and their property. Fire prevention efforts do not receive much attention from residents, especially in certain areas such as Maccini Sombala where the majority of the population are migrants so they do not really care about the conditions around them.

The public perception of drought disasters generally considers drought as not a serious disaster. The impact of drought for them is considered not as severe as the impact of floods and fires, especially if the amount of losses is very minimal. The public assumes that drought is caused by two things, namely the dry season and PDAM installations that cannot reach certain locations hit by drought. When a drought occurs, residents also look for alternative sources of clean water or wait for water assistance from PDAM or the private sector. Public knowledge about drought mitigation is also still very minimal so that drought anticipation efforts are handed over to the government in this case PDAM. Public participation in drought mitigation efforts is also still very minimal, which is also indicated by the absence of a communication forum or community formed by the community to anticipate drought disasters.

From the mapping of disaster perceptions, risk perceptions, and disaster mitigation perceptions of the Makassar City community, it can be concluded that the Makassar City community is at the Pre-Modernity and Industrial Society stages. However, so far the people of Makassar are considered able to face and handle disasters. One of the factors that makes the people of Makassar relatively resilient in facing various forms of disasters is the existence of relatively high social solidarity where collectivity can still be built especially during emergency situations. Although there are no communities that are firm in handling disasters, informal forums are often used to discuss common interests, ranging from evacuation, food provision, aid distribution, to housing rehabilitation. It's just that such a thing will solve the problem in the short term where there has been no effort to ensure that future generations do not feel the impact of the same disaster.

4.4 Driving and Inhibiting Factors of Community Participation in Disaster Mitigation

Residents have shown some participation, especially during disasters. Generally, Makassar residents know the causes of floods, fires, and droughts. The problem is that the results of citizen identification are still scattered and there has been no serious effort to collect all these opinions into a document that narrates them systematically so that they can be the basis for the community to act and at the same time be the basis for the government to make policies.

Identification of disaster-related issues and their causes is very important, including community input regarding their vulnerabilities and capacities. Efforts to formulate strategic plans for disaster management are still technocratic and top-down. In fact, the Regulation of the Head of the National Disaster Management Agency Number 02 of 2021 concerning General Guidelines for Disaster Risk Assessment emphasizes that disaster risk assessment will be the basis for making technical and administrative policies related to disaster management. It's just that in these guidelines, the measurements used for threats (hazards), vulnerabilities, and capacities are very quantitative in nature and rely on secondary data held by the central statistics agency so that to complete it there must be a structured and massive effort to mobilize active participation from disaster-prone communities to identify the threats, vulnerabilities, and capacities they have. Unfortunately, until now Makassar City does not have a final Disaster Risk Assessment document. There have been efforts by the people of Makassar to participate in decision-making regarding disaster mitigation solutions, although only limited to submitting proposals to the government so that they carry out structural mitigation efforts such as building embankments, reservoirs, or water reservoirs that are used in drought conditions, but they cannot access the extent to which their proposals can be realized.

Community participation in handling disaster issues is mostly carried out during and after a disaster. During a disaster, the community participates in evacuations and volunteers in public kitchens. However, participation in the form of evacuation and providing assistance to victims is more spontaneous because disasters are considered sudden and unexpected events so they are not planned well and systematically. There should be a joint action framework between the community and the government if a disaster occurs which is possible if supported by two things, namely: first, the results of a Disaster Risk Assessment from both the policy implementer and the community. Second, the existence of a culture of disaster awareness that is growing in the community. If our community's perception has not reached the stage of a risk society as formulated by Smith (1996), and has not transformed from the crunch model to the release model from Kreps (1985), then the joint action framework as intended will not be realized.

The community has also participated in the pre-disaster stage, namely the presence of residents in disaster socialization events carried out by related agencies. In the socialization event, there will likely be efforts to enrich information between related agencies and the socialization participants. Of course, this will increase public knowledge about disasters and what needs to be done to reduce disaster risks. Disaster socialization is certainly not only carried out to increase the information treasury owned by the community, but more or less this can encourage participation.

Knowledge about disasters must be possessed by the community because it can influence attitudes and concerns to be ready and alert in anticipating disasters.

One of the challenges in urban society is the absence of institutions on local knowledge or wisdom that comes from the collective memory of the community regarding disaster events as suggested by Wenger and Weller (1973) as a residue of disaster sub-culture, namely the existence of a set of patterns of action, behavior, and social organization of collective savings or results in the culture of the community obtained from previous experiences. So that if a risky natural event occurs, the residue of the disaster sub-culture will direct community members to act and organize themselves properly because if not, the risky natural event or occurrence will turn into a disaster.

The urban community of Makassar City, most of whose residents are migrants and are accustomed to living in an urban style where economic calculations play a significant role. The background of the population is also very heterogeneous in terms of culture, language, ethnicity, religion, social and economic. This makes it difficult to have a sub-cultural residue of the disaster because the collective memory of the disaster was never built from the beginning as formulated by Wenger and Weller (1973). So in the future there must be an effort to build a sub-cultural residue institution through communities that can collect the perceptions, experiences, and knowledge of members of society about the disaster that are scattered.

Community participation in evaluating disaster mitigation policies is carried out together with the government, especially in relation to handling during and after a disaster, the effectiveness of evacuation, distribution of aid to victims, and the extent of success in reducing the number of victims.

The driving and inhibiting factors of community participation in Makassar City as formulated by Haikan (2022) can be divided into two domains, namely: First, the internal domain includes the characteristics of individual members of the community, education, income, length of residence, and experience in groups. Second , the external domain is the relationship between policy implementers (government and private sector) and policy targets (community).

Thus, the driving factors of community participation that fall into the internal domain are the culture of mutual cooperation that is quite high during and after a disaster, then the enthusiasm of residents in attending disaster socialization conducted by the government, leadership from local leaders, and the intensity of informal meetings if the situation is considered prone to disaster. While the external domain is the government's fairness in implementing programs, especially in distributing aid, support from the sub-districts and districts.

There are two driving factors emphasized in this study, namely: First, the existence of a culture of mutual cooperation that is still quite high during emergency situations which is social capital and is very important to be maintained and developed by all stakeholders. Although disasters are something that cannot be anticipated by individuals, they must be anticipated in the spirit of collectivity. One way to maintain this collectivity is through the initiation of local residents, especially those in disaster-prone locations, to form communities so that there is dialogue, discussion, qualitative risk and vulnerability assessment, and participatory risk mapping.

Second , the quality of local leadership is very necessary in controlling the social situation when a disaster occurs. Leadership that functions as a social controller for

the balance of conditions when a disaster occurs so that the quality of leadership of a local leader becomes very important.

The inhibiting factors for community participation in the internal domain are the lack of a culture of disaster awareness, the passive attitude of residents who only wait for assistance, dependence on government assistance, minimal community involvement in planning, lack of community knowledge about disasters and their risks, and immigrants who have not yet blended with the surrounding community. While the inhibiting factors in the external domain are the lack of safety facilities and infrastructure and minimal coordination between residents and the local government.

There are two inhibiting factors emphasized in this study, namely the lack of a culture of disaster awareness and minimal disaster knowledge. In fact, if we refer to the National Action Plan for Disaster Risk Reduction, there are five priority actions that must be taken, namely: 1) Placing disaster risk reduction as a national and regional priority and its implementation must be carried out by a strong institution. 2) Identifying, assessing disaster risks and implementing an early warning system. 3) Utilizing knowledge, innovation and education to build a culture of safety and resilience at all levels. 4) Reducing the scope of disaster risk. 5) Increasing disaster preparedness at all levels, so that the response is more effective.

Thus, based on the five priorities, knowledge and education become important and strategic entry points in order to build a culture of society that cares and understands disaster issues. A culture of disaster awareness does not only mean that society has complete information about disasters, but also is aware of the risks, aware of the vulnerabilities they have, and considers that disaster situations are not something that is given , but something that the risk can be reduced.

5 Conclusion

1. Most people view floods, fires, and droughts as something that is natural, routine, and the destructive impacts cannot be calculated or predicted. Using Smith's (1996) categorization, the informants' perceptions of disasters are in the Pre-Modernity and Industrial Society stages. Using the Kreps (1985) model, it is included in the *crunch model category* .
2. The driving factors of community participation are in the internal domain which is marked by the existence of a fairly high culture of mutual cooperation during and after disasters, then the enthusiasm of residents in attending disaster socialization conducted by the government, leadership from local leaders, and the intensity of informal meetings during emergency situations prone to disasters. The driving factors of the external domain are the government's fairness in implementing programs, especially in distributing aid, support from the village and sub-district governments.
3. Inhibiting factors for participation in the internal domain are the lack of a culture of disaster awareness, the passive attitude of residents who only wait for assistance, dependent behavior on government assistance, participation in planning still involves a handful of people, lack of knowledge of residents about disasters and their risks, and newcomers who have not yet blended in with the surrounding community. While inhibiting factors in the external domain are the

lack of safety facilities and infrastructure and the lack of coordination between residents and the sub-district/district.

4. Community participation in disaster mitigation in Makassar City is still spontaneous and not yet community-based to be able to cover *the* physiographic, demographic, economic, sociological and anthropological plurality of Makassar City society. Community-based disaster mitigation is also expected so that the people of Makassar City can grow a culture of disaster awareness so that they are able to empower internal resources in order to reduce disaster risks. This model is also expected to help the Makassar City Government to transform into *a resilience city.*

6 Recommendation

1. The Makassar City Government or BPBD must immediately complete the draft Disaster Risk Assessment Document so that it can become a joint reference for reducing disaster risk in Makassar City.
2. Encourage the Makassar City Government to create a Draft Regional Regulation on Disaster Management for Makassar City which emphasizes community participation in the form of communities to carry out disaster mitigation so that it will become a legal umbrella and a clear coordination path between agencies when a disaster occurs.
3. Encourage BPBD, Fire Department and PDAM to program education, training and mentoring on disaster prevention models for floods, fires and droughts. For floods, all forms of relief facilities should be prepared from the start and if necessary there should be regulations limiting the number of immigrants who will settle in areas prone to and at risk of flooding. For fires, the Fire Department must promote socialization of fire prevention, especially in slums and dense settlements. Meanwhile, for droughts, PDAM must prepare reserve water pockets a month before the long dry season and seek additional sources of clean water to overcome the scarcity of clean water.
4. Encourage BPBD Makassar City to immediately program the initiation of disaster mitigation communities (pilot projects) in each sub-district. This *pilot project program* can later be used to find out more details about the community model that will be replicated and modified to all disaster-prone areas.
5. Encourage the Makassar City BPBD to collaborate with the Makassar City Social Service, Makassar City Fire Department, Makassar City PPPA Service, Makassar City Health Department, as well as academics who are *concerned* with disaster issues and form a team to prepare guidelines for the formation of the Makassar City Disaster Mitigation Community which will later become a reference in the *pilot project program* for the formation of the Makassar City disaster mitigation community.
6. Encourage the Makassar City Research and Development Agency to initiate further research on the disaster vulnerability of Makassar City from a multi-perspective perspective (sociology, anthropology, economics, and regional planning) so that the Makassar City Government has a detailed map related to disaster vulnerability in Makassar City and completes the Disaster Risk

Assessment Document which is currently being completed by the Makassar City BPBD.

7. Encourage the Makassar City Government to allocate a budget to complete disaster mitigation facilities and infrastructure, especially in disaster-prone areas.
8. Encourage the Makassar City Government to strengthen the capacity of local *leaders* such as RW heads, RT heads, mosque imams, local youth leaders, local religious leaders, and women leaders in dealing with disruptive situations such as disasters. Because in the future, Makassar City will face risks due to global climate change and natural disasters. The role of local leaders is very important in abnormal situations, because they are the ones who will be the reference for norms when a disaster occurs in order to create public order.
9. Encourage the Makassar City Culture and Tourism Office to conduct an inventory and socialization of local values that can be utilized to create community resilience when facing disasters.
10. Encourage the Makassar City Education Office to seriously consider and make disaster mitigation an integral part of the teaching system in elementary and secondary schools. This is important to do so that a culture of disaster awareness can be formed early on.
11. Encourage PDAM Makassar City to think about ways and models of clean water supply for the people in the northern part of the city so that their need for clean water can be met. During the dry season, PDAM Makassar City should be able to prepare water tanks in locations prone to clean water shortages, which will later be filled with clean water by PDAM periodically. PDAM Makassar City can also consider making deep drilled wells to be used in drought situations.
12. Encourage the Makassar City Government to utilize the existence of tourist corridors as an integral part of disaster mitigation efforts.

References

1. Adger, W. Neil. (2003). Social Capital, Collective Action, and Adaptation to Climate Change. Economic Geography 79: Issue 4.
2. Asiri, La.(2020). Pelaksanaan Mitigasi Bencana Kebakaran Pada Dinas Pemadam Kebakaran Kabupaten Buton. *Jurnal Studi Kepemerintahan*, 3 (2): 28-40.
3. Arnstein, Sherry. (1969). A Ladderof Citizen Participation. *Journalofthe American InstituteofPlanners*, 35 (4): 216-224.
4. Alshifah Novianty, (2020).*Partisipasi Masyarakat Dalam Program Perilaku Hidup Bersih Dan Sehat (PHBS) Di Kecamatan Cipondoh Kota Tangerang*, UIN Syarif Hidayatullah Jakarta.
5. Ariyabandhu. (1999). *Defeating Disasters. Colombo: Intermediate Technology*
6. Bakornas BP.(2007). *Pengenalan Karakteristik Bencana dan Upaya Mitigasinya di Indonesia (Edisi 2)*. Direktorat Mitigasi, LakharBakornas BP.
7. Boli, Yoseph et.al. (2004). *Panduan Penanganan Risiko Bencana Berbasis Masyarakat* (CommunityBasedDisasterRiskManagement). Kupang: FKPB.
8. Blaikieet. al.(1994). *At Risk: Natural Hazards, People's Vulnerability, and Disasters*. London: Routledge.
9. Cahyo S. (2008). *Materi Fasilitasi dalam Konteks PRB: Pelatihan untuk Fasilitator* PRB.

10. Cannon, Terry. (1994). *Vulnerability Analysis and the Explanation of 'Natural' Disasters*. Chapter 2 (pp. 13—30) *in Disasters, Development and Environment*, A. Varley (ed.). London: Wiley.
11. Conyers, Diana. (1999). Perencanaan Sosial di Dunia Ketiga. Diterjemahkan oleh Susetiawan. Yogyakarta: Gajah Mada Press.
12. Dea Deviyanti (2013), "Studi Tentang Partisipasi Masyarakat Dalam Pembangunan Di Kelurahan Karang Jati Kecamatan Balikpapan Tengah", Jurnal Adminstrasi Negara, 1 (2).
13. Haikal, Muhammad Farhan. (2022). *Partisipasi Masyarakat Dalam Mitigasi Bencana Alam Untuk Mengurangi Risiko Bencana Tanah Longsor Di Kecamatan Megamendung, Kabupaten Bogor*. (Skripsi Sarjana Universitas Islam Negeri Syarif Hidayatullah Jakarta).
14. Harvey, D. (1996). Justice, Nature, and the Geography of Difference.
15. IPPC (Intergovernmental Panel Climate Change).
16. Januandari, Mia Ulfa; Turningtyas Ayu Rachmawati, Heru Sufianto.(2017). Analisa Risik Bencana Kebakaran Kawasan SegiempatTunjungan Surabaya. *Jurnal Pengembangan Kota*, 5 (12): 149-158.
17. Kalangkahan, PH; W.A. Areros; Stefanus Sampe.(2017). Kajian Partisipasi Masyarat Dalam Program Pengurangan Risiko Bencana Berbasis Komunitas Di Kota Bitung. *Jurnal Ilmiah Society*, 1 (24).
18. Doocy, S. Gorokhovich,Y. Burnham, G., Balk, D. Robinson C. (2007). "*Tsunami Mortality Estimates and Vulnerability Mapping in Aceh, Indonesia*."American Journal of Public Health, Supplement 1, 2007, Vol. 97, No. S1.
19. Kreps, G.A. (1984). *Sociological Inquiry and Disaster Research*. Annual Review of Sociology, Vol. 10. No.1, hal. 309-330.
20. Krishna S. Pribadi. (2008)."*Konsep Pelembagaan CBDRM*." Slide Simposium CBDRM IV, Bali.
21. Muluk, Khairul. (2007). *Menggugat Partisipasi Publik dalam Pemerintahan Daerah (Sebuah Kajian dengan Pendekatan Berpikir Sistem)*. Malang: BayumediaPublishing.
22. Noor, Djauhari. 2004. *Pengantar Mitigasi Bencana Geologi*. Deepublish Yogyakarta.
23. Oliver-Smith, A. andHoffman,S.M.(1999). *The Angry Earth: Disaster in AnthropologicalPerspective*. London: Routledge.
24. Paripurno, Eko Teguh. (2006). *Penerapan PRA untuk Manajemen Bencana. Yogyakarta*: Pusat Studi Manajemen Bencana UPN Veteran Yogyakarta.
25. Putnam, R. (2000) Bowling Alone: The Collapse and Revival of American Community. New York: Simon & Schuster Paperbacks.
26. Sudjana, Nana. (2010). Proses dan Hasil Belajar. Jakarta: Bumi Aksara.
27. Soetomo. (2012). Pembangunan Masyarakat Merangkai Sebuah Kerangka. Yogyakarta: Pustaka Pelajar.
28. Sunarto, Sj. Hetifah. (2004). Inovasi, Partisipasi, dan Good Governance. Jakarta: Yayasan Obor Indonesia.
29. Suwaryo, Putra AginaWidyaswara; Podo Yuwono.(2017). Faktor-Faktor yang Mempengaruhi Tingkat Pengetahuan Masyarakat dalam Mitigasi Bencana Alam Tanah Longsor. *UniversityResearchColloquium Universitas Muhammadiyah Magelang.*
30. Sugiyono.2016. Memahami Penelitian Kualitatif (Bandung: Alfabeta)
31. Sugiyono. 2016.*Metode Penelitian Kualitatif, Kuantitatif, dan R&D*. (Bandung : Alfabeta)
32. Smit, B. & Wandel, J. (2006). Adaptation, Adaptive Capacity and Vulnerability. Global Environment Change. 16(3): 282-292.
33. Smith, Anthony-Oliver. (1996). *Anthropological Research on Hazards and Disasters.* Annual Review of Anthropology, Vol. 25. No.2. hal. 303-328.

34. Tansey, James. (1999). *Culturaltheoryandrisk: a review. Health, Risk&Society,* Vol.1, No.1, hal 71-90.
35. Ulum, Safrilul; Suryani Amanatun Dewi. 2021. Partisipasi Masyarakat Dalam Pengembangan Desa Wisata Gamplong. *Jurnal Manajemen Publik dan Kebijakan Publik*, 3 (1): 14-24.
36. Umeidini, Femil; Eva Nuriah; Muhammad Fadryansyah.(2019). Partisipasi Masyarakat Dalam Penanggulangan Bencana Di Desa Mekargalih Kecamatan Jatinangor. *Jurnal Pekerjaan Sosial*, 2 (1): 13-22.
37. Widodo, Widiyanto Hari Subagyo.(2016). *Panduan Pengembangan Resilient City*. Direktorat Jenderal Tata Ruang Kementerian Agraria dan Tata Ruang/Badan Pertanahan Nasional.
38. Winardi. (2005). Motivasi dan Permotivasian Dalam manajemen. Jakarta: PT. Raja Grafindo Pustaka.
39. Wu, Chengwei; Jeremy Cenci; Wei Wang; JiazhenZhang.(2022). Resilient City: Characterization, Challenges, andOutlooks. *Buildings 2022*, 12, 516.
40. Bacapesanfajar.co.id. 26 April 2023. Pasca Kebakaran, Segini Kerugian Trans Studio Mall Makassar. Diakses pada pada Sabtu 17 Juni 2023 dari https://bacapesan-fajar-co-id.cdn.ampproject.org/v/s/bacapesan.fajar.co.id/2023/04/26/pasca-kebakaran-segini-kerugian-trans-studio-mallmakassar.
41. Cnnindonesia.com. 17 Februari 2023. Jejak Banjir di Makassar: Februari Terparah, Ribuan Warga Mengungsi. Diakses pada Jumat 9 Juni dari https://www.cnnindonesia.com/nasional/20230217142047-20-914444.
42. DetikSulsel. 9 Februari 2023. Poliisi Ungkap Penyebab Kebakaran Pasar Sentral Makassar Karena Open Flame. Diakses pada Sabtu 17 Juni 2023 dari https://www.detik.com/sulsel/hukum-dan-kriminal/d-6559570/polisi-ungkap-penyebab-kebakaran-pasar-sentral-makassar-karena-open-flame?
43. Makassarmetro.com. 26 Desember 2022. BPBD Makassar: 3.046 Unit Rumah Terdampak Banjir. Diakses pada Jumat 9 Juni dari https://makassarmetro.com/2022/12/26/bpbd-makassar-3-046-unit-rumah-terdampak-banjir
44. Mongabay.co.id. 8 Desember 2022. Banjir di Makassar: Dari Cuaca Buruk, Timbunan Sampah hingga Perlindungan Masyarakat Pesisir dan Pulau. Diakses pada Jumat 9 Juni dari https://www.mongabay.co.id/2021/12/08/banjir-di-makassar-dari-cuaca-buruk-timbunan-sampah-hingga-perlindungan-masyarakat-pesisir-dan-pulau/
45. Ppid.makassarkota.go.id. 27 Maret 2023. BPBD Makassar Tingkatkan Kesiapsiagaan Antisipasi Potensi Bencana Kekeringan. Diakses pada Jumat 9 Juni dari https://ppid.makassarkota.go.id/home/detailberita/1702
46. Tvonenews.com. 14 Maret 2023. Walikota Makassar Target Bangun Kota yang Berdaya Tahan Terhadap Bencana. Diakses pada pada Jumat 9 Juni dari https://www.tvonenews.com/amp/daerah/sulawesi/107370-walikota-makassar-target-bangun-kota-yang-berdaya-tahan-terhadap-bencana?